

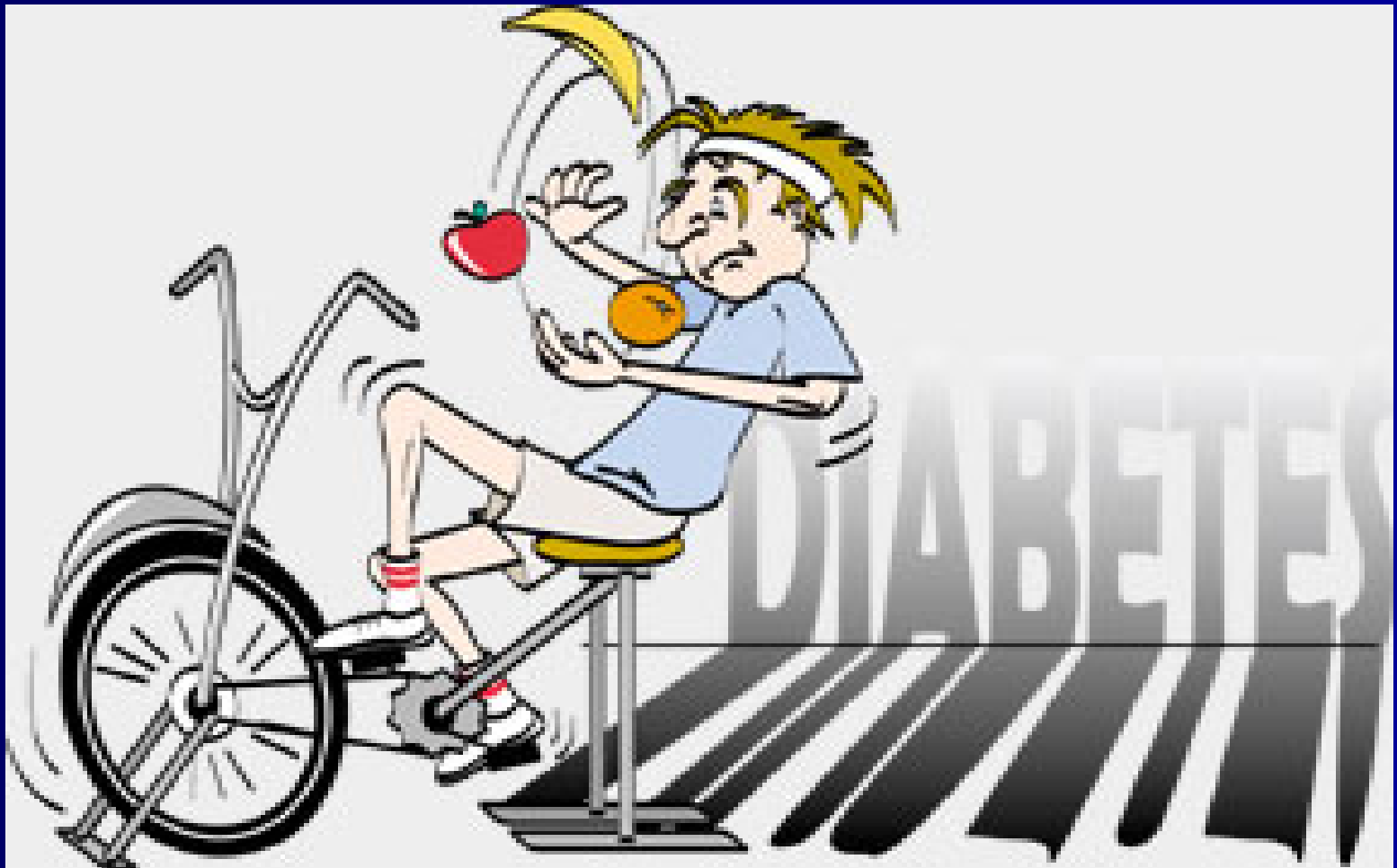
Diabetes Management

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Faiz Ghar, Lahore 22October 2012

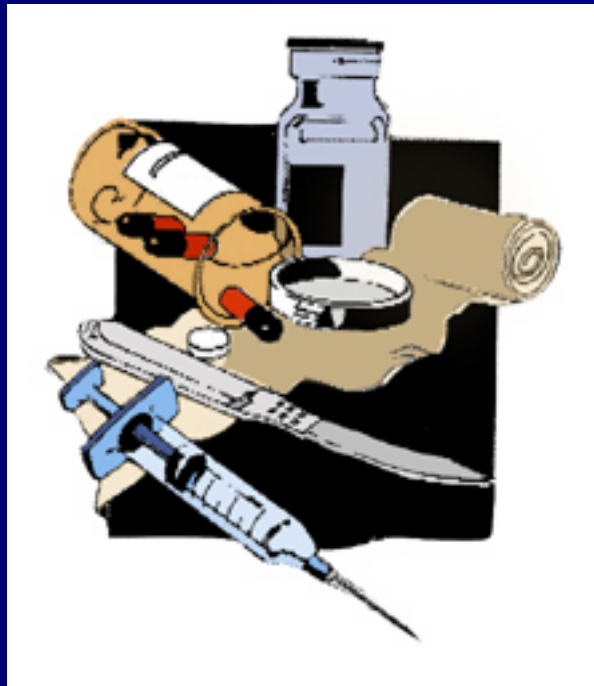


DEFINITION & SYMPTOMS

Diabetes Mellitus

Definition

A group of diseases characterized by high blood glucose concentrations resulting from defects in insulin secretion, insulin action, or both

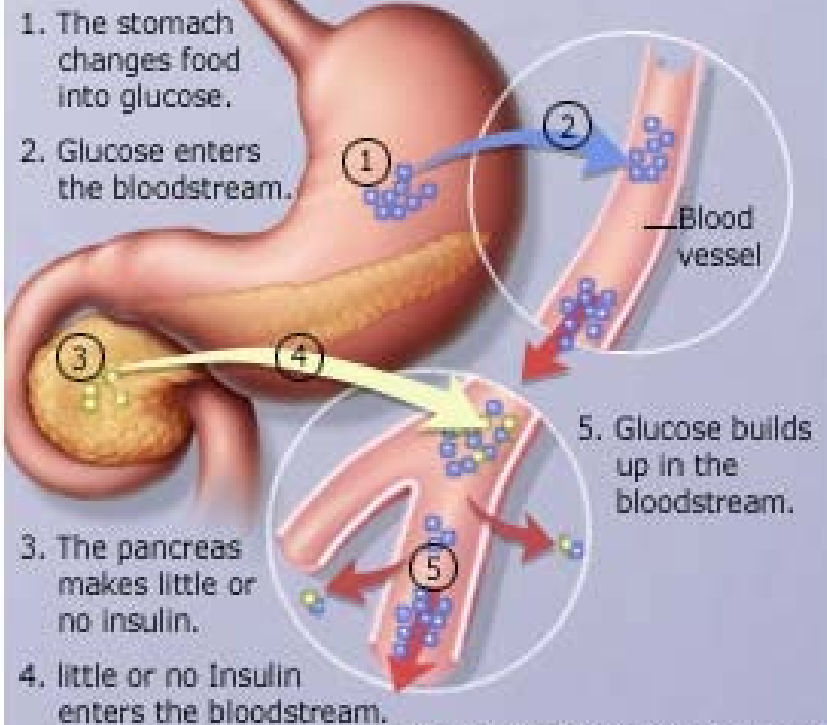


Diabetes Type 1

An Account



Type 1 Diabetes



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Diabetes Type 1

Symptoms

- Hyperglycemia
- Excessive thirst (polydipsia)
- Frequent urination (polyuria)
- Significant weight loss
- Electrolyte disturbance
- Ketoacidosis

Diabetes Type 2

An Account

- Most common form of diabetes accounting for 90% to 95% of diagnosed cases
- Combination of insulin resistance and beta cell failure (insulin deficiency)
- Progressive disease
- Ketoacidosis rare, usually arises in illness

Diabetes Type 2

Symptoms

- Insidious onset
- Often goes undiagnosed for years
- Hyperglycemia
- Excessive thirst (polydipsia)
- Frequent urination (polyuria)
- Polyphagia
- Weight loss

RISK FACTORS

Diabetes Type 2

Risk Factors

- Family history of diabetes
- Older age
- Obesity, particularly intra-abdominal obesity
- Physical inactivity
- Prior history of gestational diabetes
- Impaired glucose homeostasis
- Race or ethnicity

Metabolic Syndrome

Characteristics

- n Insulin resistance (Fasting >109; Random >126)
- n Hyper-insulinemia (Fasting <80; Random <109)
- n Abdominal obesity (Waist: male >36; Female >32)
- n Dyslipidemia (Ch >200; TG >100; LDL >150; HDL <32 or 36)
- n Hypertension (>120/80)

Risk factor for cardiovascular disease and glucose intolerance

DIAGNOSTIC CRITERIA & TREATMENT GOALS

Revised Diagnostic Criteria

	FPG mg/dl	OGTT 2 hr mg/dl	Casual PG mg/dl
Normal	<100	<140	
Pre- diabetes	≥ 100 and < 126	≥ 140 and <200	
Diabetes	≥ 126	≥ 200	>200 + symptoms

Standards of Medical Care in Diabetes--2007. *Diabetes Care* 30:S4-S41, 2007

FPG = Fasting Plasma Glucose; OGTT = Oral Glucose Tolerance Test

Action Times of Human Insulin

<i>Insulin</i>	<i>Onset</i>	<i>Peak</i>	<i>Duration</i>
Rapid acting (Lispro, Aspart)	<15 min	0.5–1.5 hr	2–4 hr
Short acting (Regular)	0.5–1 hr	2–3 hr	3–6 hr
Intermediate (NPH)	2–4 hr	6–10 hr	10–16 hr
Mixtures	0.5–1 hr	Dual	10–16 hr

Diabetes

Treatment Goals

- A_{1c} <7%
- Peak PPG <180 mg/dl
- Blood pressure <130/80 mmHg
- LDL-C <100 mg/dl
- Triglycerides <150 mg/dl
- HDL-C >40 mg/dl*

*for women HDL-C goal may be increased by 10 mg/dl

- FPG 90—130 mg/dl

Lipid Goals in Diabetes

- LDL cholesterol <100 mg/dl
- HDL cholesterol
 - Men >40 mg/dl
 - Women >50 mg/dl
- Triglycerides <150 mg/dl

American Diabetes Assoc. Standards of Medical care for Adults with Diabetes. Diabetes Care 30 (supplement 1) 2007. Accessed 2/13/07

Blood Pressure Goals In Diabetes

- Patients with diabetes should be treated to a systolic blood pressure <130 mmHg (C)
- Patients with diabetes should be treated to a diastolic blood pressure of <80 mmHg (B)

Intermediate-Acting Insulin

- NPH, Humulin N, Novolin N)
- Cloudy appearance
- Onset: 1-2 hours after injection
- Peak: 6 to 12 hours
- Duration: 18-24 hours

Basic Strategies For Type 2 Diabetes

- Encourage weight loss.
- Moderate calorie restriction (250–500 kcal/day less) is associated with improved control independent of weight loss.
- Spread nutrient intake, especially carbohydrate (CHO) throughout the day.
- Encourage physical activity.
- Decrease fat intake.
- Monitor BG, and add medications if needed.

EXERCISE

Benefits of Physical Activity

At least 150 min/week of Aerobic

(At least 3 days/week with no more than two consecutive days without physical activity)

*In the absence of contraindications, people with type 2 diabetes should be encouraged to perform **resistance exercise** three times/week, targeting all major muscle groups, progressing to three sets of 8-10 repetitions at a weight that cannot be lifted more than 8-10 times*

Precaution: If BG > 250-300 mg/dl, postpone exercise until control improves

- Improves insulin sensitivity (glycemic control) in Type 2 diabetes
- Reduces hepatic glucose output
- Reduces cardiovascular risk factors
- Controls weight
- Improves mental outlook

American Diabetes Association Standards of medical care in diabetes. *Diabetes Care* 30:S4-S36, 2007

Recommendations For Weight Management

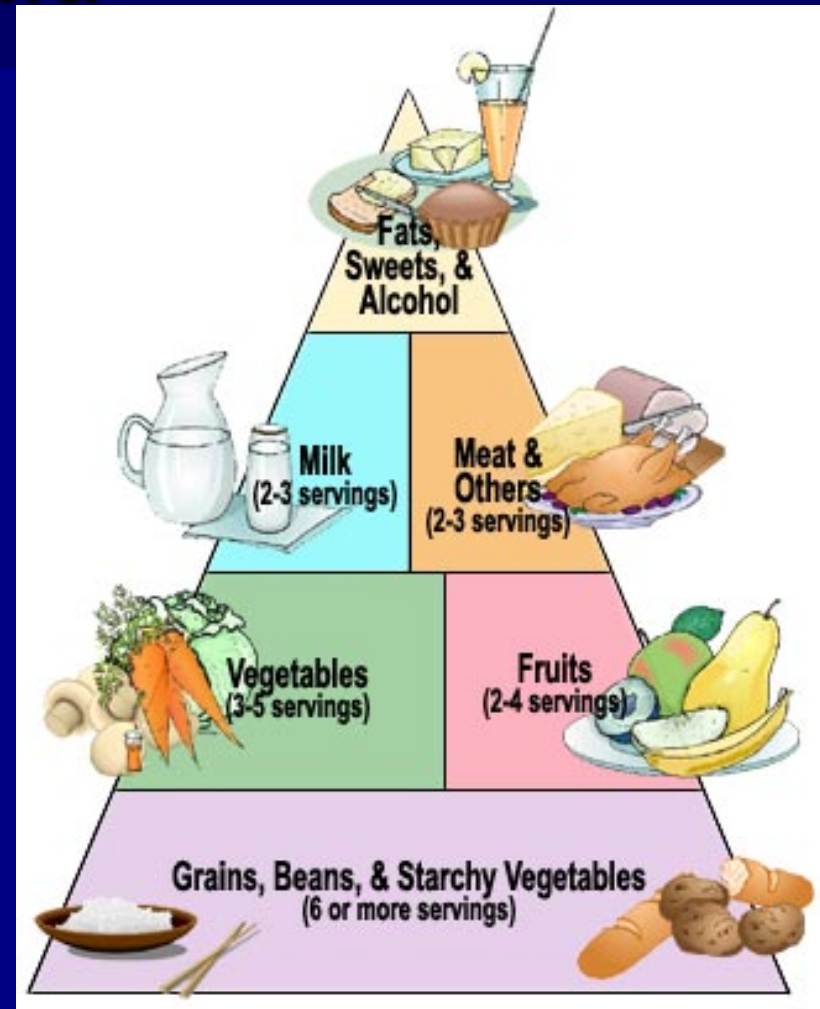
- Make *permanent* changes in eating behavior.
- Eat regularly.
- Slow, gradual weight loss is best.
- Choose lower-fat foods.
- Incorporate regular physical activity.

FOOD & DIET

Nutrition Self Management

Food Guide Pyramid

- Use basic guide
- Use diabetes-specific guide



National Diabetes Education Program.

<http://www.ndep.nih.gov/diabetes/MealPlanner/images/mypyramid.jpg>

Glycemic Index and Glycemic Load of Foods

Food	Glycemic Index	Glycemic Load
Carrots	47	3
Potato baked	85	26
Sweet corn	60	11
Apple	38	6
Chocolate cake	38	20
Corn flakes	92	24
Oatmeal	42	9
Pumpkin	75	3
Sucrose	68	7

Classification Glycemic Index (GI)

■ Low GI (55 or less)

Beans (white, black, pink, kidney, lentil, soy, almond, peanut, walnut, chickpea); small Seeds (sunflower, flax, pumpkin, poppy, sesame); most whole intact Grains (durum/spelt/kamut wheat, millet, oat, rye, rice, barley); most Vegetables (beet, squash, parsnip); most sweet Fruits (peaches, strawberries, mangos); tagatose; fructose

■ Medium GI (56–69)

Whole wheat or enriched wheat, pita bread, basmati rice, potato, grape juice, raisins, prunes, pumpernickel bread, cranberry juice, regular ice cream, sucrose, banana

■ High GI (70 and above)

white bread (only wheat endosperm), most white rice (only rice endosperm), corn flakes, extruded breakfast cereals, glucose, maltose, maltodextrins, potato, pretzels

Fiber and Diabetes

- As for the general population, people with diabetes are encouraged to consume a variety of fiber-containing foods. However, evidence is lacking to recommend a higher fiber intake for people with diabetes than for the population as a whole.
- It requires very large amount of fiber (~50 grams) to have a beneficial effect on glycemia, insulinemia, lipemia



Non-Caloric Sweeteners

- Saccharin (Sweet'N Low®)
- Aspartame (NutraSweet®)
- Acesulfame potassium, acesulfame-K (Sweet One®)
- Sucralose (SPLENDA®)



“Diabetes” Supplements

- Gymnema sylvestre (herb)
- Vitamin E: Antioxidant - maintains a healthy heart.
- Chromium Picolinate: Necessary for proper carbohydrate metabolism.
- Selenium: Antioxidant - Helps protect the body from free radicals.
- Lutein: promotes eye health
- Folic Acid: Helps maintain heart health.
- Vitamin C: Antioxidant - Boosts the immune system.
- Alpha Lipoic Acid: Antioxidant - Stimulates other antioxidants
- Vanadium
- Resveratrol

Examples of CHO Servings

Mix and Match

- Apple, 1 small
- Fruit cocktail, ½ cup
- Nonfat milk, 1 cup
- Orange juice, ½ cup
- Bread, 1 slice
- Oatmeal, ½ cup
- Pasta, 1/3 cup
- Potatoes, ½ cup
- Brownie, 1 small
- Yogurt, frozen, ½ cup
- Cake, frosted, 2 inch square, (2 CHO)
- Corn, ½ cup
- Baked beans 1/3 cup

Presenter's Profile in Diabetes Management

■ WORK EXPERIENCE

- As Associate in Obesity Research Center, Columbia University School of Human Nutrition, New York, USA, 6 months in 2001
- As Assistant Dietician in Loma Linda University of Medical Sciences, California, USA, 6 months in 2000
- As 'Diabetes Nutritionist' in Diabetic's Institute Pakistan (DIP), Lahore, 18 months in 1997-98
- As Assistant in City Gym & Fitness Center, Warsaw, Poland, for 6 months in 1991
- As 'Chief Nutritionist' in First Diet-Care Research Center, Lahore, since 1997

■ TRAINING

- One year Diploma from Institute of Public Health, Lahore, 1998
- Two time 3-month courses in 'Diabetes Management' from 'Serviers' and 'King Edward Medical University', Lahore
- Three 2-day short training workshops on 'Diabetes' from DAP & DIP

■ EDUCATION

☞ NIL

**MANAGE DIABETES &
LIVE WELL**

THANKS

DISCUSSION !!!